

# Missouri Resources

Spring 2018 • Volume 35 • Number 2







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**ABOVE**  
A white-tailed deer fawn lies hidden in lush spring foliage in Jefferson City, June 2017.  
MoDNR PHOTO BY ANDREW RICHMOND

**ON THE FRONT COVER**  
The Watkins House at Watkins Mill State Historic site is viewed from the heirloom garden, which is tended according to descriptions of the Watkins Garden and gardening practices known to be in use in Clay County during the 1870s.  
MoDNR PHOTO BY BEN NICKELSON

**ON THE BACK COVER**  
An angler fishes beneath the dam at Bennett Spring State Park in the early hours of trout season opening day, 2018.  
MoDNR PHOTO BY BEN NICKELSON

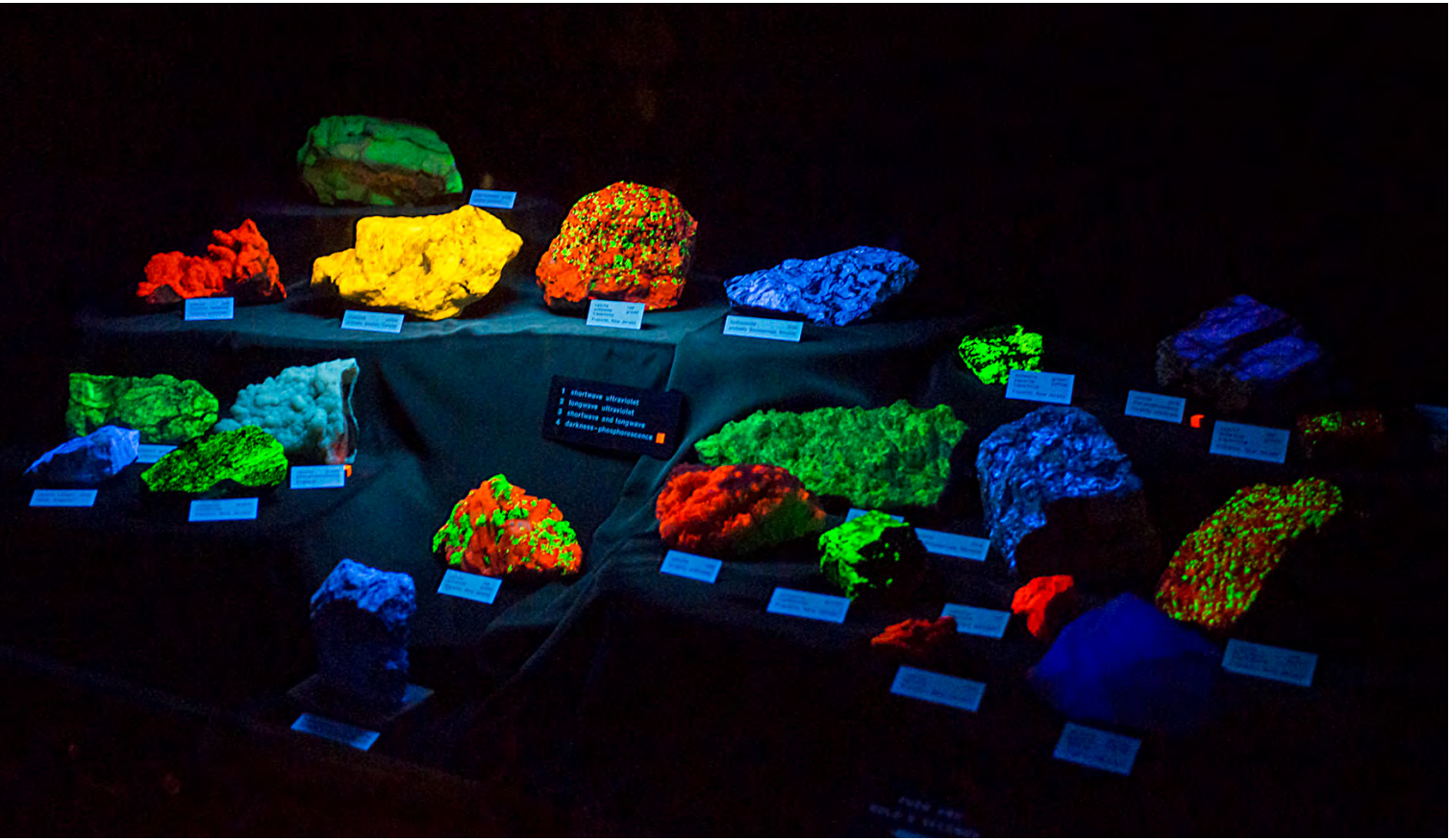
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## CONNECT WITH MoDNR STATE PARKS



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**ABOVE**  
Minerals fluoresce under ultraviolet light in a display at Missouri Mines State Historic Site.  
MoDNR PHOTO BY BEN NICKELSON



# Your 2018 SPRING CLEANING PROBLEM SOLVER

by Amy Poos

It's that time of year again. Days are getting longer. Temperatures are finally getting warmer, though you never know what you will get in Missouri! And the amount of household, automotive and gardening items you do not use anymore keeps getting bigger and bigger. Have no fear, the Missouri Department of Natural Resources has information to help you safely dispose of those unwanted items. Let's start in the garage – if there's room. You might have scrap tires or leftover pesticides ...



## Scrap Tire Options

- Leave tires removed from your vehicle with the tire dealer/retailer for proper disposal.
- Take scrap tires to a tire dealer/retailer or permitted scrap tire processor for proper disposal.
- Cut the sidewalls out of each tire (leaving two sidewalls and tread ring) and dispose of the three pieces with your normal trash.
- Cut the tires circumferentially through the center of the tread (like a bagel) and dispose of the two pieces with your normal trash.
- Contact a permitted scrap tire hauler to remove and properly dispose of the tires.

### Contact the following for:

Scrap tire processors: [dnr.mo.gov/env/swmp/tires/tireprocessors.htm](http://dnr.mo.gov/env/swmp/tires/tireprocessors.htm)

Scrap tire haulers: [dnr.mo.gov/env/swmp/tires/docs/wthaulerlist.pdf](http://dnr.mo.gov/env/swmp/tires/docs/wthaulerlist.pdf)

More information: [dnr.mo.gov/env/swmp/tires/docs/ScrapTireInfoSheet.pdf](http://dnr.mo.gov/env/swmp/tires/docs/ScrapTireInfoSheet.pdf)

**NOTE: Scrap tires may not be burned or buried. Burning or burying scrap tires is a violation of the Missouri Solid Waste Management Law.**



MoDNR PHOTO BY BEN NICKELSON

## Pesticides

Each year, the department's Pesticide Collection Program provides free collection events for farmers and households throughout Missouri to properly dispose of unwanted waste pesticides that include herbicides, rodenticides and fungicides.



MoDNR PHOTO BY C.J. PLASSMEYER

### 2018 Pesticide Collection Event Locations:

- Bethany: March 24 at Orscheln's, 3810 Miller St.
- Palmyra: May 19 at the Palmyra Recycling Center, 810 W. Line St.
- Perryville: June 23 at MFA Agri Services, 3501 U.S. Highway 61.
- Nevada: July 21 at the Vernon County Fairgrounds, 1488 E. Ashland St.
- Jefferson City: Sept. 8 at MFA Agri Services, 1009 Fourth St.

Portageville held the first collection event of the year on March 10.

For more information go to <https://dnr.mo.gov/env/hwp/pesticide/>

In the garage or in your house, you may find household hazardous waste you would like to get rid of, like paint thinner, motor oil, cleaning products, batteries, compact fluorescent light bulbs, CRT televisions and more. Many counties or cities have permanent household hazardous waste collection facilities. To find out more go to [dnr.mo.gov/env/swmp/hhw/permanenthhwfacilities.htm](http://dnr.mo.gov/env/swmp/hhw/permanenthhwfacilities.htm). The Missouri Materials Management Directory can help you find local contractors, vendors and drop-off locations for these items as well; visit [recyclesearch.com/profile/mo-directory](http://recyclesearch.com/profile/mo-directory).



## Christmas Left-overs

Around the holidays you might have received or purchased new electronics and then stored the old ones away somewhere so you didn't have to see them or think about what to do with them. E-cycle Missouri can help!

Visit [dnr.mo.gov/ecyclemo/where.htm](http://dnr.mo.gov/ecyclemo/where.htm) to find locations and businesses to help you get rid of your unwanted electronics.



## Empty That Medicine Cabinet

Finally, how many expired or no longer used over-the-counter medications or prescriptions are sitting in your medicine cabinet? Getting rid of these pharmaceuticals is an easy way to stop children or pets from being accidentally poisoned. It also prevents potential abusers from getting their hands on them.

First of all, do not flush medicines down the toilet. This potentially could poison the environment and wildlife. [dnr.mo.gov/pubs/docs/pub2291.pdf](http://dnr.mo.gov/pubs/docs/pub2291.pdf) has more information about the proper disposal of pharmaceuticals.

Find a Drug Take-Back Program. You can contact your local law enforcement or go to [deadiversion.usdoj.gov/drug\\_disposal/takeback/](http://deadiversion.usdoj.gov/drug_disposal/takeback/). National Prescription Drug Take Back Day is April 28.

For other recycling information, please visit <https://dnr.mo.gov/env/swmp/rrr/index.html> or contact the department's Solid Waste Management Program at 573-751-5401 or 800-361-4827.



Amy Poos is division information officer for the department's Division of Environmental Quality.





MoDNR PHOTO BY CHRISTOPHER W. BOBRYK



MoDNR PHOTO BY CHRISTOPHER W. BOBRYK



# Protecting People, Bats and Historic Mining Culture

by Christopher W. Bobryk

**A**bandoned mine shafts are remnants of Missouri's rich mining history, and can be found scattered throughout the landscape. Abandoned mines are a potential hazard to public safety. They also may provide refuge for endangered gray bat (*Myotis grisescens*) species.

Aggressive protection programs focus on permanently sealing mine shafts to safeguard the public. Consequently, bats may end up losing a resource critical to their survival. Installing bat-friendly gates, or cupolas, has proven to be an optimal solution for balancing human safety with wildlife conservation.

Cupolas are steel cages designed to prevent unrestricted human access to particular types of caves or shafts while allowing safe, unrestricted passage for bats and other critters into their desired subterranean habitat.

"Thanks to great federal and state environmental protection laws, the need to close abandoned mines for public safety does not trump the need to protect and preserve critical habitat for endangered species," said Jim Cooley, project supervisor with Cave Research Foundation (CRF), a 60-year-old nonprofit organization dedicated to preserving cave resources.



(Top left) U.S. Department of Interior-Office of Surface Mining Reclamation and Enforcement and MoDNR Abandoned Mine Land unit employees Dave Dowdy (AML), Brian Hicks, not pictured, (OSMRE), Brandon Schneider (OSMRE), Greg Snellen (MoDNR) and Daniel Wedemeyer (AML) inspect the Discovery Shaft in Valles Mines, Jefferson County, in July 2014.

(Top middle) Vic Rackers, department project engineer, watches members of the Cave Research Foundation weld expansion metal atop the 20-foot wide, 40-foot long and 4-foot tall Discovery Shaft cupola in Jefferson County.

(Top right) Rackers conducts a final inspection of the completed Discovery Shaft cupola.

(Left) Shelly Colaskie, Missouri Department of Conservation, collects biological information from a captured bat.

MoDNR PHOTO BY DANIEL WEDEMEYER





(Top) Abandoned mine shafts in Valles Mines were inspected with a downhole camera for traces of the presence of bats.  
(Left) Vic Rackers, department project engineer, meets with the cupola construction supervisor, Jim Cooley, Cave Research Foundation, to conduct a final inspection of the 55-foot deep Gray Bat shaft in Jefferson County.  
(Above) Vic Rackers helps AmeriCorps volunteers construct a cupola over the 92-foot deep Mossy Shaft in Jefferson County.



**“For those caves or mines that are most important for bats ... gates provide a means to give the undisturbed quiet and protection that bats need. “During these times of stress and decline in Missouri’s bat populations from White Nose Syndrome, gates are one of the best means we have to help them survive the winters and protect cave resources and environments.”**

**-Ken McCarty, Chief, Natural Resource Management Section, Missouri State Parks**



The Department of Natural Resources Abandoned Mine Land (AML) unit partnered with CRF and Missouri Department of Conservation (MDC) to install four cupolas in Valles Mines (one of the earliest mining settlements in the “Lead Belt” of southeast Missouri). This was the final phase of a 2-year project where nine dangerous mine shafts had already been permanently sealed.

“The Valle Mines cave-gating project was a collaborative effort between numerous participants to eliminate dangerous shafts and protect valuable bat habitat on private land. I was very pleased to contribute,” said Vic Rackers, PE, AML lead project engineer.

Bat surveys were performed by MDC. The steel cupolas were constructed and installed by CRF, with help from AmeriCorps volunteers. The final phase of the Valles Mines reclamation project commenced in May 2017 and the department concluded the project in November 2017 for a total of \$53,192.

“Installing bat-friendly gates is a great solution that protects bats, keeps the public safe, and preserves our mining history,” said Steve Frazier, curator of the Lost History Museum of Valles Mines and the landowner’s representative.

Learn more about abandoned mine lands online at [dnr.mo.gov/geology/lrp/reclamation/aml/amlinfo.htm](http://dnr.mo.gov/geology/lrp/reclamation/aml/amlinfo.htm).

*Christopher W. Bobryk is an environmental specialist with the Missouri Geological Survey, a division of the Missouri Department of Natural Resources.*

(Top) Dave Dowdy, Brian Hicks, Brandon Schneider, Greg Snellen and Daniel Wedemeyer monitor the video feed from a downhole camera while inspecting mine shafts in Valles Mines, Jefferson County, in July 2014.  
(Bottom) The downhole camera allowed inspectors to measure the depth of the mine shafts as well as check for the presence of bats before the Missouri Department of Conservation conducted a bat survey in the area.





# MISSOURI STATE PARKS: WHERE COLD HANDS AND WARM HEARTS MEET

by Brian Quinn

**H**elping people make lifelong memories is what Missouri's state parks and historic sites are all about. But, did you know they do much more than provide awesome places for people to have fun exploring nature and learning about our state's rich heritage? For instance, our state parks work year round to engage with and support their nearby communities by doing things like hosting special charity events.

Take, for example, the three parks that host annual Polar Plunge events to raise money for Special Olympics of Missouri. Each February, Trail of Tears, Thousand Hills, and Lake of the Ozarks state parks host hundreds of locals who throw caution to the wind and plunge into frigid park lakes or outdoor swimming pools to raise money for area Special Olympics programs.

(Above) Plunge participants rush into the icy waters of Forest Lake at Thousand Hills State Park in Adair County.

MODNR PHOTO BY EMILY BURKE

(Below) Polar Bear Plungers at Lake of the Ozarks State Park pose for the judges of the costume contest.

MoDNR PHOTO BY BEN NICKELSON



Polar Plungers, like this group at Trail of Tears State Park in Cape Girardeau County, took a cold water dip to raise funds for Special Olympics of Missouri.

LAURA SIMON PHOTOGRAPHY PHOTO

State park rangers assist a plunge participant into the frigid water at Lake of the Ozarks State Park in Camden and Miller counties.

MoDNR PHOTO BY BEN NICKELSON



Missouri Department of Natural Resources Director Carol S. Comer sprints out of the water at Lake of the Ozarks State Park after participating in the Polar Bear Plunge with a group of Missouri State Parks employees.

MoDNR PHOTO BY BEN NICKELSON





Director Comer and Missouri State Parks Deputy Director Mike Sutherland anxiously await their turn, flanked by park rangers, as the rainy plunge festivities begin.  
MoDNR PHOTO BY BEN NICKELSON



Crowds show up early to check in and compare costumes before taking a plunge at Trail of Tears State Park.  
LAURA SIMON PHOTOGRAPHY PHOTO

“I was introduced to Special Olympics when I was a recreation student at SMSU and volunteered at some of the sporting events. I’ve served on our local Polar Plunge committee for the past 11 years and plunged myself in 2009, raising \$650.00! I have always admired how Special Olympians try their hardest, support each other and smile all the time. It’s a wonderful charity to support and I’m glad the Department of Natural Resources backs the Polar Plunge fundraising efforts.”

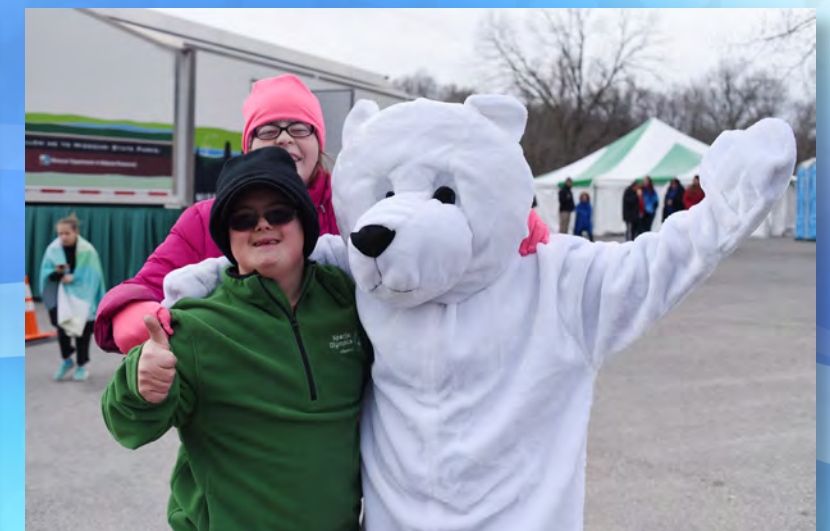
**-DENISE DOWLING, NATURAL RESOURCE MANAGER,  
TRAIL OF TEARS STATE PARK**



Gilligan and the Skipper lead the colorful parade to the costume competition at Trail of Tears State Park.  
LAURA SIMON PHOTOGRAPHY PHOTO



Scrappy plungers wrestle each other into the water at Trail of Tears State Park.  
LAURA SIMON PHOTOGRAPHY PHOTO



(Above) Participants pose with the polar bear mascot at Trail of Tears State Park in Cape Girardeau County.  
(Left) Hardy volunteers of all ages gladly gather to support Special Olympics of Missouri by taking the chilly plunge.  
LAURA SIMON PHOTOGRAPHY PHOTOS

## TRAIL OF TEARS

Marking its 12th year, the Trail of Tears State Park Polar Plunge event has raised more than \$28,800 so far this year. In addition to its partnership with the area Special Olympics office, the park works closely with Cape Girardeau Parks and Recreation, Cape Girardeau Police Department and other local businesses and organizations that support the effort. Area high schools and student organizations at Southeast Missouri State University are always willing to recruit more volunteer plungers.

## THOUSAND HILLS

2018 was also the 12<sup>th</sup> year for the Polar Plunge at Thousand Hills State Park. Since it began, the event has raised more than \$276,500 for Special Olympics Missouri’s North Area. Held in the northern-most state park host location, the Thousand Hills event usually presents the most extreme conditions. This year, 62 plungers braved a minus 3-degree wind chill and three inches of lake ice to raise more than \$13,300.

## LAKE OF THE OZARKS

A Polar Bear Plunge event has been held at Lake of the Ozarks State Park annually since 1996. In that time, more than \$2.7 million has been raised for Special Olympics Missouri’s Central Area. This year, 275 plungers braved the cold to add an estimated \$157,000 to the total.

Other fundraising activities have been added to get more plungers involved. A popular new event features “Super Plungers” who plunge 24 times in 24 hours. A “Pee Wee

Plunge” was added for kids nine and under. But instead of enduring icy lake water, the kids plunge into a portable pool of warmer water provided by the local fire department.

*Brian Quinn is division information officer for Missouri State Parks, a division of the Department of Natural Resources.*





## Blastoid

Blastoids are an extinct group of stemmed echinoderm invertebrate animals that lived in the marine environment during the Paleozoic Era from early Silurian time to late Permian time, about 255 to 440 million years ago.

**B**lastoids are related closely to another group of similar-looking stemmed echinoderms called crinoids. Blastoids differ from crinoids in having a more highly developed five-sided (pentamerous) symmetry and specialized anatomical features that are lacking in crinoids. Also, blastoids tended to be smaller in size and shorter stemmed. The blastoid body, like that of a crinoid, consisted of four main divisions: a nut-like, five-sided calyx that housed vital organs; branching arms that radiate from the calyx that were used for gathering food; a short column (stem or stalk) that extended down from the bottom of the calyx; and rootlets that branched out from the bottom of the column that were used to anchor the animal to the seafloor. Each body division was composed of numerous, hard, calcareous pieces (ossicles) that were held together by ligaments and connective tissue. These formed a skeletal framework that was supportive, protective and flexible enough to afford some degree of body movement.

After the animal died, the arms, stems and rootlets readily fell apart and scattered across the sea floor. Their calyces, however, were more resistant and tended to remain intact long enough to become fossilized. Most of what is known about blastoids is based on their fossilized calyces. Fossil specimens with their stems attached are rare. The typical calyx seldom exceeds one inch in diameter, though the calyx of one species that lived during the late Mississippian time is about 2 inches in diameter.

Next to nothing is known about the larval and early growth stages of blastoids. The fossil record indicates the calyx shape progressively changed from thin and longitudinally elongated for small, young calyces to short and wide, almost globular, for large, adult calyces. The large calyces look fat or bloated, and it has been stated that "old-age blastoids have a tendency to become obese."

Being a filter feeder, blastoids were known to inhabit marine environments that had some degree of water agitation. Fossil blastoids typically are found in association with rugose corals, fenestrate bryozoans, brachiopods and crinoids. The shell-crusher sharks of the Paleozoic Era likely grazed on blastoid and crinoid calyces.



Side and top views of 1.5-inch-diameter calyx of blastoid species *Pentremites pyriformis* from 325-million-year-old upper Mississippian limestone. Specimen is on display at the Ed Clark Museum of Geology at Missouri Geological Survey, 111 Fairgrounds Road, Rolla. Learn more at [dnr.mo.gov/geology/edclarkmuseum.htm](http://dnr.mo.gov/geology/edclarkmuseum.htm). MoDNR PHOTOS BY BEN NICKELSON



## Flood Season is Upon Us

**I**t's difficult to do much about a flood when it is happening, but after the floodwaters recede, the cleanup effort takes over as those affected try to pick up the pieces. During and after a flood, there are hazards that everyone should keep in mind in an effort to stay safe.

In general, it's a good idea to minimize direct contact with floodwaters. Water from flooding frequently is contaminated with sewage, animal waste and other harmful substances, so it's best to avoid swimming, wading, tubing or other recreational contact as this could be hazardous to your health. Recreational boating when rivers are in flood stage also is risky because rapidly flowing floodwaters can contain unpredictable currents, eddies, and submerged debris.

If contact with floodwater is unavoidable, make sure to bathe or shower with antibacterial soap afterwards. If you are injured while working in these conditions, contact your doctor to determine if you need a tetanus shot. If electric,

gas, drinking water or wastewater systems are not working due to flood conditions, vacate the premises.

As floodwaters ease, it is important to clean flooded buildings with fresh water and a biodegradable detergent. Inspect and clean all natural gas, electric, drinking water and sewage disposal systems before returning the dwelling to service. Water trapped behind levees or pooled in low areas may be released or pumped back into the adjacent river or stream without special permission or permits.

Be courteous and avoid damaging neighbors' property.

If you see floodwater that might be contaminated with petroleum products or other chemicals, contact your local emergency response agency or the nearest MoDNR regional office.

Dealing with a flood is not easy for anyone involved. Reducing the risk of coming in contact with contaminated surface water ensures the continued

safety of those affected so that a quick and efficient cleanup can take place. For more information about Natural Disaster Resources, visit [dnr.mo.gov/disaster.htm](http://dnr.mo.gov/disaster.htm).

### Checklist

#### During a Flood:

- Minimize direct contact with floodwaters.
- Avoid recreational boating when rivers are in flood stage.
- Bathe with antibacterial soap after contact with floodwater.
- If injured, contact a doctor to find out if you need a tetanus shot.

#### After a Flood:

- Clean flooded buildings with fresh water and biodegradable detergent.
- Inspect and clean all building utilities before putting them back into service.
- Pump pooled water from low areas back into adjacent rivers or streams.
- Avoid damage or harm to neighboring property.
- Report water contaminated with petroleum products or chemicals.

Source: Missouri Department of Natural Resources Fact Sheet Pub. No. 00759



# Antwane President

*Environmental Specialist,*  
Missouri Department of Natural Resources,  
Division of Environmental Quality



MODNR PHOTOS BY BEN NICKELSON

**Please introduce yourself and tell us how long you’ve been with MoDNR.**

My name is Antwane President, I’m originally from Kansas City. I’ll have been with the department for eight years this June.

**What are your job duties?**

My job duties include communicating with the motoring public on issues that they may have regarding vehicle emissions. For example, if they failed the emissions inspection and can’t really afford to make the necessary required repairs, our office is a last line of defense for these customers getting their vehicle registered. We also perform audits, investigate emissions repairs and act as a liaison between motorists and inspection stations.

**What are some daily issues you encounter?**

Some of the things I encounter every day are assisting motorists with compliance waivers. We provide cost-based waivers, estimate-based waivers and other exemptions. We also assist inspection stations in the research of repairs, equipment failures and things like that. We do covert audits, where we go undercover at stations and try to detect fraud. Our office also goes in and educates the stations on the laws that the Air Pollution Control Program enforces. We do data audits where we look at the VINs (vehicle identification numbers) and search for discrepancies that a shop may encounter. Then we go to those shops and try to educate them on how to improve their services. We also have phone days where we talk to the motorists on the phone about different repairs ... situations, and try to resolve their failed emissions test.

**What do you enjoy most about working for MoDNR?**

There are a number of things I like about the job. I like the freedom to be able to create my own schedule as far as what you’re going to do that day and how much work you can get done. I like interacting with the public, solving issues for motorists when it comes to their vehicles. So at the end of the day you are gratified; you’ve solved the issue for someone – it makes them feel good, and you feel good.



Antwane President discusses a data audit with Lori Lucas, owner of Master Auto Repair in Webster Groves.

**How does your job enhance our natural resources?**

If you look at St. Louis, it is a non-attainment zone, which means this city has more vehicle emissions pollution than others cities in Missouri, so what we do is try to lower those emissions. So we help the air quality out substantially here in St. Louis. We make motorists around St. Louis aware of the emissions their vehicles create, and once the public understands that, they’re more likely to fix their vehicles.

**What led you to MoDNR when you were job hunting?**

I’ve always been an outdoors type. I kind of stumbled into the Department of Natural Resources accidentally because I wanted to work with wildlife, plus I like being outdoors, so the opportunity to be an environmental specialist kind of drew me in. My first job, working at the department’s state laboratory kind of opened my eyes to the different types of things that go on with the department; water, land – I wanted to be a part of that.

**What would you tell someone who is considering a career at MoDNR?**

I think it’s important for an individual who’s trying to pursue a career with us to know that these jobs exist for everyone. Don’t limit yourself. If you have a background in some type

of science and you want to start somewhere as far as working in the environment, MoDNR’s definitely a place to start. We have great staff, we have knowledgeable people, we have experts in every field you can imagine. You will gain a wealth of knowledge about Missouri, the different natural resources that we protect, the different state parks, different job opportunities. It definitely fits an individual who’s looking to start a career in the environment.

Go to [dnr.mo.gov/hr](http://dnr.mo.gov/hr) and join a great team, start a great career and achieve a great purpose.



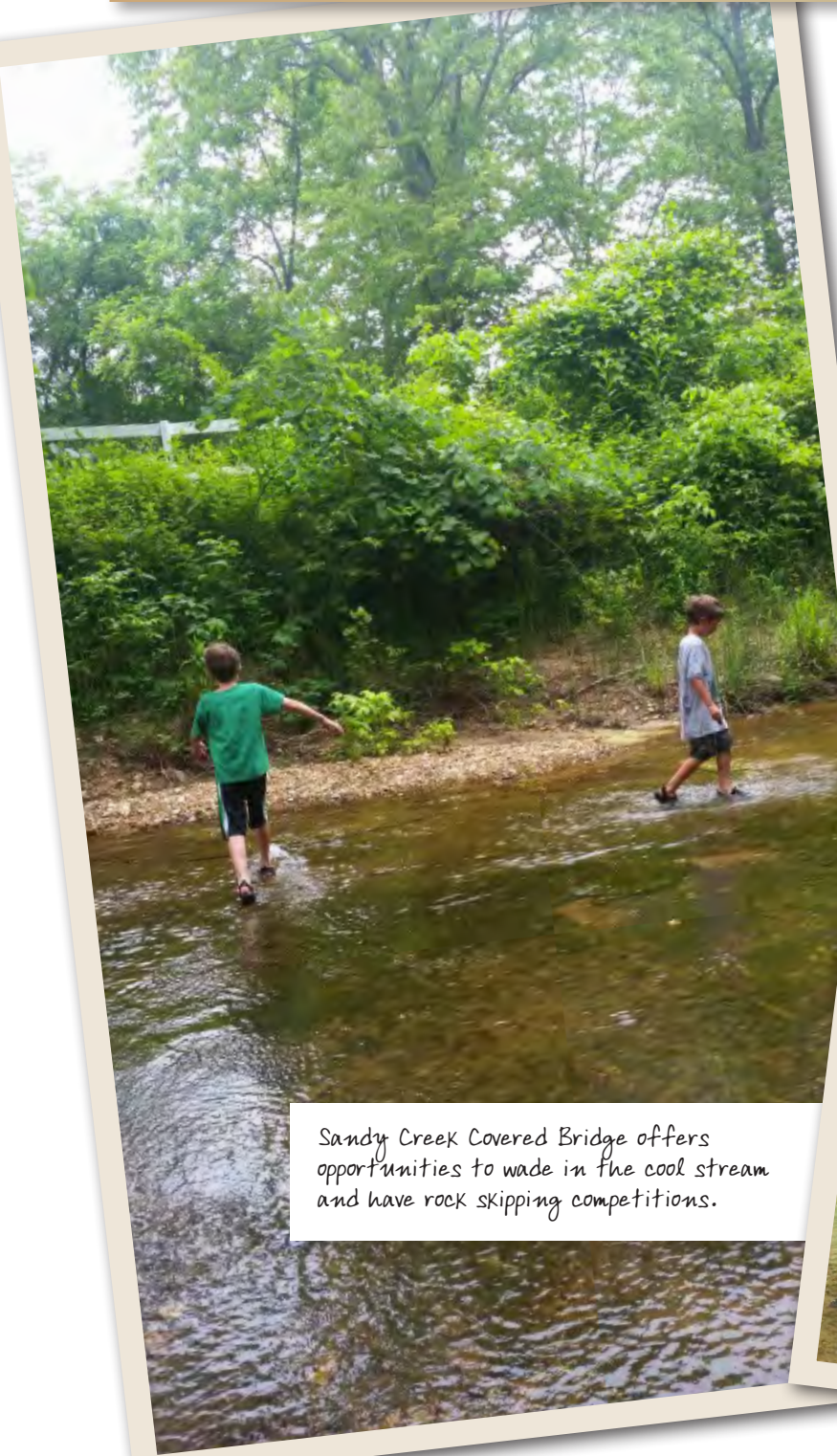
Watch Antwane’s interview on YouTube.

# A Mother’s Stamps of Approval

story and photographs  
by Amy Poos

Missouri State Parks celebrated its 100<sup>th</sup> birthday last year and they offered a challenge to Missourians to visit all 88 state parks and historic sites. Being someone who enjoys competition, I bought my Centennial Passport and started an amazing journey all across the state.

What I found through this adventure was the challenge to get my two children to share the love I have for nature and state parks. Unfortunately, the first time I took them hiking with me we were at Graham



Sandy Creek Covered Bridge offers opportunities to wade in the cool stream and have rock skipping competitions.







Cave State Park. We took a wrong turn and got lost. From that point forward, I was determined to change their negative impression of hiking.

Thankfully, Missouri has such a wide variety of landscapes and historic sites. The turning point was going to Mastodon State Historic site where the boys were fascinated with the interpretive displays about Missouri's ancient history and the extinct creatures that once roamed here.

Missouri State Parks also welcomes our canine friends. In August, we adopted a dog who has traipsed around parks with us;

such a great experience for a dog who has endless energy.

My boys loved scampering around the canyons at Grand Gulf State Park. The Little Grand Canyon, as it is nicknamed, became my younger child's favorite state park. It was unlike anything I had seen in any of the other parks. It was there I truly began to appreciate the vast diversity Missouri has to offer.

Every part of Missouri has something different. The southwest has the rolling prairies and bison (not buffalo, a difference I have learned in my travels) at Prairie State Park; whereas the Bootheel offers the tall, proud trees of Big Oak Tree State Park. In the far northeast corner of the state you can experience a walk in the past at the Illiniwek Village State Historic Site which is much different than the mounds of the Mississippian people at Towosaghy State Historic site in the Bootheel. There are plenty of lakes to fish, boat and swim. Missouri state parks and historic sites have something for everyone.

My goal has been accomplished. Although we fell just shy of all 88 stamps, my boys can't wait until our next adventure.

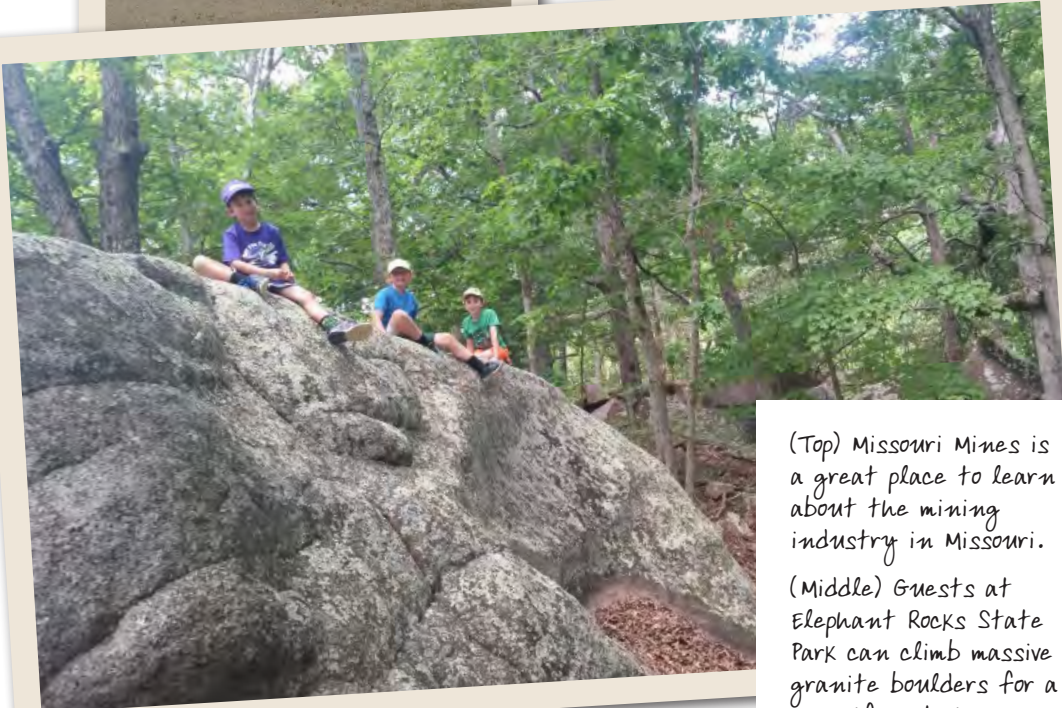
They've learned about history, science, nature and life. We will be able to share these memories of good quality family time forever. I wouldn't trade that for anything.

Thank you Missouri State Parks for bringing my family closer together, for giving me memories I shall always cherish and adventures my boys and I will never forget.

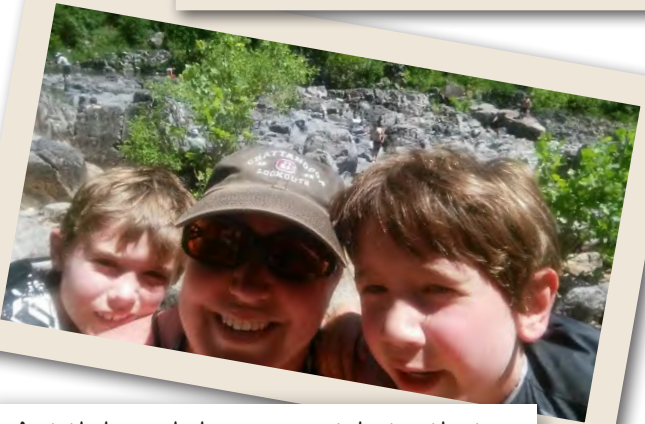
Amy Poos is division information officer for the department's Division of Environmental Quality.



(Below) Kayaking at Finger Lakes State Park is a great way to relax in solitude.  
(Right) Pets are welcome at Missouri State Parks, as long as they stay on a leash.  
(Bottom right) At Grand Gulf State Park, guests can adventure down to the bottom of a canyon.



(Top) Missouri Mines is a great place to learn about the mining industry in Missouri.  
(Middle) Guests at Elephant Rocks State Park can climb massive granite boulders for a magnificent view.  
(Bottom) Mastodon State Historic Site features a mastodon fossil, viewable in the visitor center.



A visit to a state park or historic site is a great opportunity to take a selfie with family or friends.





# Don Robinson State Park



(Top) The first .6 mile of Sandstone Canyon Trail is paved and handicap accessible. The pavement ends at a shelter and the trail continues along the upper ridge of a beautiful sandstone canyon.

(Above) Interpretive resource coordinator Erik Otto leads a group of enthusiastic visitors during the grand opening of Don Robinson State Park in 2017.

(Right) Don Robinson's house still stands within the park. Robinson's gift led to the creation of a new state park that boasts unrivaled biologic and geologic diversity.

(Background) This unique sandstone canyon within the park is part of the LaBarque Creek Watershed and is viewable from the Sandstone Canyon Trail.

MoDNR PHOTOS BY BEN NICKELSON



Once inside the quiet shady sanctuary of Don Robinson State Park, it's hard to believe that the bustling metropolitan area of St. Louis is just a few miles away. The park's wooded hillsides buffer any outside noise and its interesting sandstone canyons make it easy to forget there is a modern world outside the park's borders.

That's just what Don Robinson intended when he purchased the property as his personal home and sanctuary. Robinson was a self-made St. Louis-area businessman who became successful by producing and marketing a cleaning product called "Off." It was Robinson's wish that upon his death, his property would become part of the Missouri state park system. Today, Don Robinson State Park offers visitors a chance to experience and explore this amazing landscape that is not far from St. Louis, but still feels like a world away.

The park is located in the upper watershed of the LaBarque Creek and features sandstone box canyons, shelter caves, cliffs, glades and upland and bottomland forests. It is considered among Missouri's best places to conserve native wildlife and habitat. The park is rich in native flora with about 650 species of plants, natural features that attract numerous migratory songbirds and a high-quality stream that supports 42 species of fish.

Today, visitors can explore this amazing park through a network of trails, then relax with friends and family in the shady picnic area.





# Katy Trail State Park Rock Island Spur

The Rock Island Spur of Katy Trail State Park is a multi-use trail that extends 47.5-miles through the heart of west-central Missouri and offers adventurers a slightly different combination of outdoor and learning experience.

The scenic Rock Island Spur takes bicyclists, hikers and

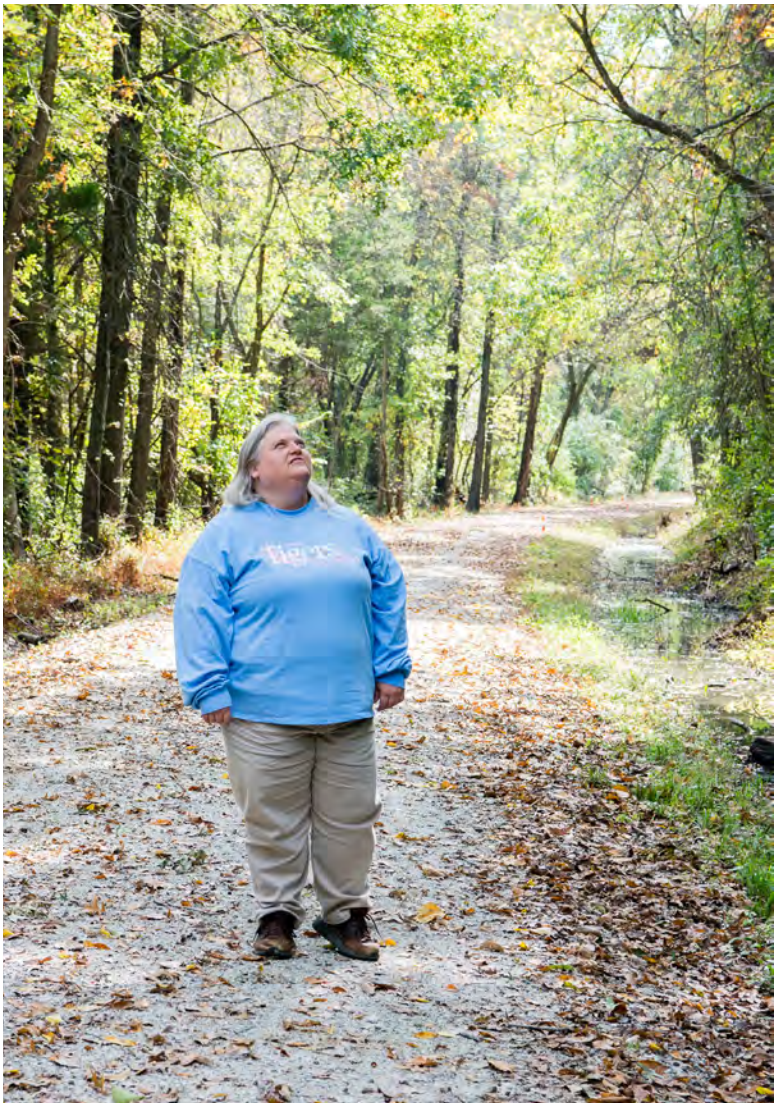
equestrians through the area’s captivating blend of prairie-like landscapes, picturesque farm fields and dense woodlands. Trail users can also learn about Missouri’s rural history as they explore the small towns that sprung up and thrived along the railroad corridor. The trail is built on the former corridor of the Chicago, Rock Island

and Pacific Railroad – traditionally called the Rock Island Line – which passes between Windsor and Pleasant Hill. Other trailheads are located at Lee-ton, Chilhowee and Medford.

During its heyday, the Rock Is-land Line lived up to its reputa-tion made famous in the 1930s American folk song, *The Rock Island Line is a mighty good road, The Rock Is-land Line is the road to ride.*

The Rock Island Spur trail can be enjoyed on its own or as part of a much longer trail experience. At Windsor, the trail connects to the Katy Trail, which stretches 240 miles between Clinton and Machens.

The Katy Trail is a desig-nated section of the na-tionwide American Discov-ery Trail, a coast-to-coast, non-motorized recreation-al trail.



(Above) The Rock Island Spur provides Missourians with an additional 47.5 miles of trail to hike or bike. It connects with the 240-mile Katy Trail. (Left) Bicyclists observe the confluence of the Katy Trail and the Rock Island Spur at Windsor in Pettis County. (Below left) The Rock Island Spur is shown looking down from a bridge on the Katy Trail. MoDNR PHOTOS BY BEN NICKELSON



(Above) The Rock Island Spur offers a variety of scenic views including intersecting bridges, prairie-like landscapes, farmland, woodlands and rural towns. (Left) The Rock Island Line served as inspiration for a classic folk song that has been performed and recorded by countless musicians. MoDNR PHOTOS BY BEN NICKELSON



HIKERS | bicyclists  
47.5 miles  
equestrians





butnot least

E<sup>3</sup> Challenge winners number 3

# A Tie Goes to the Winners

In baseball, a tie goes to the runner – actually there is no such rule (it would be redundant to the actual rule). But in selecting the third Missouri Department of Natural Resources E<sup>3</sup> team winners, MoDNR staff voted and two Missouri Geological Survey teams ended in a tie. Fair is fair, so two winners, two trophies. Congratulations to the Dam and Reservoir Safety Program and Well Installation Section!

## Dam and Reservoir Safety Program

This program is tasked with performing permit renewal inspections on 697 state regulated dams. Each dam must be inspected by one of two inspection teams. The E<sup>3</sup> team worked to improve efficiencies within the dam safety inspection process by consolidating dam inspections and renewal dates by team, for counties where fewer dams exist. Counties where owners have multiple dams now will be serviced by one team to reduce confusion and redundancy. The number of regulated dams will continue to grow and these consolidations will sustain inspections without having to increase staffing. It is estimated the effort will reduce overlapping county visits by 28.8 percent and travel time and costs by 11.3 percent.

This project was a follow-up action identified in the group’s 2015 E<sup>3</sup> project where they successfully consolidated by watershed districts and realized positive results.

**Dam and Reservoir Safety Program E<sup>3</sup> Team:** Jacob Rohter, Jerry Scheible, Glenn Lloyd, Ryan Stack, Chase Barbarick, Cara Blevins and David Donovan.



## Well Installation Section (WIS)

Part of the Geological Survey Program, WIS receives an average of 10,000 well records per year. The goal of the team’s E<sup>3</sup> project was to reduce the time spent from receipt of an incomplete well record to final certification.

In the past, records often had incomplete or inaccurate information that delayed the certification of the record. Eventually, letters requesting the information were mailed to contractors at least twice before the issue became a “case.” Cases are generated to track a wellhead record until resolution, potentially resulting in denial of a contractor’s permit at renewal time. Non-certification of a well record adversely affects both citizens and contractors. WIS implemented a trial version of the new process in 2015 and saw a significant decrease in mailed letters.

In 2017, the new E<sup>3</sup> project began making an initial phone call to the drilling contractor first. Since the 2017 process went operational, a further reduction of the need to mail letters was confirmed. WIS also saved resources, staff time, and reduced the time required to certify the well record.

**Wellhead Protection Section E<sup>3</sup> Team:** MaLinda Bassett, Eric Hohl and Karen Smith.

*The Missouri Department of Natural strongly encourages and supports staff participation in its LEAN program, dubbed “E<sup>3</sup>” for “Enhancing Effectiveness and Efficiency.” E<sup>3</sup> is a continuous improvement program focused on making processes more effective and efficient while increasing customer service. Employees look at what they did yesterday and relentlessly work to do it more effectively and efficiently today.*

See the Summer 2018 issue of Missouri Resources Online for the E<sup>3</sup> Challenge winner number 4.



Front row, from left: David Donovan, Ryan Stack; second row: Jerry Prewett, Deputy Director, Missouri Geological Survey, Carey Bridges, Geological Survey Program Director, Karen Smith, MaLinda Bassett, Eric Hohl; back row: Jerry Scheible, Jacob Rohter, Joe Gillman, Director, Missouri Geological Survey, Glenn Lloyd. Not pictured: Cara Blevins and Chase Barbarick.



## Finally Spring ...

Missouri’s trout fishing season kicked off in the chilly pre-dawn hours of March 1. Missouri anglers don’t have to travel far to find some of the best trout fishing in the country.

The streams at Bennett Spring, Montauk and Roaring River state parks offer great angling opportunities in breathtaking settings.



Missouri State Parks – a division of the Missouri Department of Natural Resources



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